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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/719,136 | 12/07/2000 | Malcolm Barry James | COLLI-P-30/5 | 5715 |

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| EXAMINER | |
|---|---|
| LUK, EMMANUEL S | |
| ART UNIT | PAPER NUMBER |
| 1722 | |

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/719,136 | JAMES, MALCOLM BARRY | |
| | Examiner | Art Unit | |
| | Emmanuel S. Luk | 1722 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *21 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *20,21 and 24-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *33* is/are allowed.

6)☒ Claim(s) *20,21,24-32 and 34-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: The specification lacks the subheadings that denotes background of the art, brief description of the drawings, the summary of the invention, and the detailed description of the invention.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

**Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
(f) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 18-20, 24-31 and 35-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Kostura (4072181) in view of Cavazos (5167688).

Kostura teaches an apparatus for regulating the temperature of a mold (10), the apparatus having two conduits (12, 14), the chamber is the portion of the conduit within the mold (10) that exchanges heat with the mold, at least a portion of the chamber conforms with the shape of the mold surface (Fig.), wherein one of the conduits leads to

a cooling condensing means (20), and the vapor returns to liquid. Kostura also teaches heating means (51) and a sensor (52) for controlling the temperature of the mold.

Kostura fails to teach the return conduit operates by gravity.

Kostura teaches the use of a pump (40) that allows for the condensed water to return towards the chamber thereby bypassing the need to use gravity to ensure the fluid returns back to the chamber.

Cavazos does teach how the liquid can return via gravity within the system.

It would have been obvious to one of ordinary skill in the art to modify Kostura with the placement of the system to allow for gravity to return to the chamber. However, the pump in Kostura ensures the material return in any placement of the condenser, thereby allowing for different structural configurations which would save on space depending on the work area.

In regards to the liquid and vapor states of the heat exchange material within the system, this is merely functional limitations to the state of the material and the structure of the apparatus is taught by Kostura, the structure merely need to be capable to allow the materials to operate in the desired manner. In regards to the completely closed chamber, the structures are capable of remaining closed in operation, thereby the prior art teaches the claimed invention. Additionally, the specification of the instant application discusses the use of a gate valve that is used in the start-up of the apparatus. This means the invention is capable of operating without being in a completely closed system.

In regards to claims 21-24, these are intended use of the mold. Kostura and Cavazos clearly teaches a system for cooling a mold system, and the mold is well known for use in the shaping of materials. That the material can be metal, plastic materials only depends on the material used for making the mold due to the temperatures of the molten materials. Both references are capable of molding a variety of materials and it is an intended use of the structure to mold the metal or plastic aterials

In regards to claim 43, Kostura teaches a heater to heat the liquid in the system, it can also be placed in the chamber to ensure the desired liquid temperature rather than preceding (50) the chamber. Kostura also teaches a sensor (52) for determining the temperature of the mold that in turns controls the heater (51) in order to adjust the temperature of the liquid (Fig.). It would have been obvious to one of ordinary skill in the art to modify Kostura with the heater being moved to the chamber as it is a rearrangement of the heater to be closer to the sensor.

5. Claims 32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cavazos (5167688) in view of Kostura (4072181)

Cavazos teaches two different methods for start-up of the molding process, one method is initially partially filling the system with the phase change liquid, such as distilled water, as the mold is heated up, the air is purged from the system via bleed valve (26) until moisture reaches the detector (34). Here, the air containing the vapor is extracted from the system. The other method involves opening the valves open, heating the mold and then releasing water into the system, as it evaporates, thus

starting the air purging process as the valve remains open until the moisture sensor (34) detects the presence in the evaporation path through the molds and closes the valves.

Cavazos fails to teach a second passageway.

In regards to the second passageway, Kostura teaches an apparatus for regulating the temperature of a mold, the apparatus having two conduits (12, 14), wherein one of the conduits leads to a cooling condensing means (20), and the vapor returns to liquid. Kostura also teaches heating means (51) and a sensor (52) for controlling the temperature of the mold.

It would have been obvious to one of ordinary skill in the art to modify Cavazos with an second conduit and heating means as taught by Kostura because it allows for a continuous serial flow if the cooling fluid through the system (Col. 1, lines 36-39).

***Response to Arguments***

6. Applicant's arguments filed 9/21/05 have been fully considered but they are not persuasive. The arguments by the applicants have been considered. However, the distinction between Kostura and invention, i.e. gravity versus using a pump, does not The argument concerning a chamber is noted, however, in broadest sense, the passage through the mold of the coolant material can be described as a chamber in which heat is exchanged. The argument that it is a single conduit passing through the mold is noted, but it can also be seen as a chamber with two connecting conduits that are connected at the inlet and outlet with the chamber itself located in the mold.

The argument concerning Kostura and the way it can remove air from the system has been noted, however, there is a safety valve (24) in Kostura that would allow the capability to remove air from the system during startup.

***Allowable Subject Matter***

7. Claim 33 is allowed.

8. Claim 34 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In this case, claim 34 is a multiple dependent claim, it is not allowable with base claim 32, however, it is indicated allowable based upon claim 33.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach a method of cooling the mold die and articles wherein the mold having a completely closed chamber having the chamber filled with the liquid and then extracting a portion of the liquid, the liquid passes through a condensing means for cooling, condensing, the vapor, the liquid returns to the chamber to return the space by gravity.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel S. Luk whose telephone number is (571) 272-1134. The examiner can normally be reached on Monday-Thursday 8 to 5 and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Davis can be reached on (571) 272-1129. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EL

DUANE SMITH
PRIMARY EXAMINER
12-12-05